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PATENT SPECIFICATION



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356,539

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Complete Accepted: Sept. 10, 1931.

COMPLETE SPECIFICATION.

Arrangement for Projecting Advertising Signs in Space.

I, HANS ISEBARN, of No. 3, Ulmenau, Hamburg, Germany, of German Nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an arrangement for projecting advertising scripts and pictures in space and, contrary to the apparatus and devices of known type, without the use of the commonly used projection screen or surfaces which, such as solid walls, are difficult to erect or sometimes cannot be erected at all or only at great expenses just on conspicuous points or which, as for instance clouds, continually alter their size, shape and distance.

In order to be absolutely independent of the hitherto used projection surfaces and to be able to project the advertising signs at any suitable and conspicuous point in space, a search light and a projection apparatus are, according to the invention, used at the same time together in such a manner, that the bundle of light rays coming from the search light serves together with the dust and water particles of the air, as projection surface, which is intersected by the light rays, containing the advertising signs and emitted by the projection apparatus, at such an angle that the advertising sign is clearly visible on this surface. In case the dust and water particles of the air should not be sufficient to produce a sufficiently dense projection surface, for example when the air is dry and free from dust, a spray or gas apparatus can be used at the same time, so that by spraying a cloud of atomised water, steam, or the like is produced. The light ray beam of the search light is passed through a window for producing a picture screen adjustable in size and thickness, the window having a slot adjustable in height or width and in height and width.

In order that the width and also the thickness of the projection surface which has been formed in this manner shall be regulated as required, the bundle of light rays coming from the search light is pro-

jected through a window provided in the search light. The picture rays from the projection apparatus and the bundle of light rays from the search light are preferably coloured in different colours standing out clearly the one from the other, for example the one white and the other red, in order that the advertising sign is well legible and conspicuous. The picture rays containing the advertising sign coming from the projection apparatus are preferably produced with the aid of stencils or transparencies known per se, which are adapted to be inserted into the projection apparatus or to be moved like a film.

An embodiment of the invention is illustrated in the accompanying drawing in which:

Fig. 1 shows in top plan view a search light and projection apparatus.

Figs. 2 and 3 show details of the arrangement.

Fig. 4 is a vertical section through the search light.

Fig. 5 shows the apparatus in use.

The arrangement consists substantially of a search light 1, a projection apparatus 2 and, if necessary, an atomising apparatus 3 (fog producing or gas apparatus).

The search light 1 has preferably a source of strong light 4, a convex lens system 5, a slot window 6 and a biconvex lens system 7. All parts are united, individually shiftable, on a so called optical bench 8 so that their mutual distance can be easily adjusted at any time, and the light ray bundle 9 set as desired. The slot window 6 may for example, according to Fig. 3 be formed of four shiftable plates 10, which are adapted according to their position to form a slot 11 of any desired width or length and which allow of a bundle of light rays of any desired size to pass from the source of light 4.

The projection apparatus 2 has also in known manner a source of strong light 12, a convex lens system 13, a picture window 14 and a lens 15. In this case all parts are also arranged shiftable in the casing of the apparatus so that the projection picture can be set sharp and to any desired distances. The picture rays 16 are pro-

duced for example with the aid of a stencil 17 according to Fig. 2, in which the advertisement sign, for example the word "Fama", is stamped and which can be exchangeably inserted in the picture window 14 of the projection apparatus. In order to enable the picture rays or the advertisement sign to be projected in a colour, if possible strongly contrasting with the colour of the search light rays 9, the picture rays are passed within the projection apparatus through a suitably coloured and preferably exchangeable transparent pane (for example of red glass) in known manner and therefore not illustrated. An exchangeable coloured transparent pane is also provided for the search light 1, if the light ray bundle therefrom is to appear in another colour. The picture rays 16 and the searchlight rays 9 may moreover be subdivided each into a plurality of different colours.

The searchlight 1 and the projection apparatus 2 are preferably arranged the one relative to the other so that the rays 9 and 16 as near as possible intersect at right angles or approximately at right angles. It is possible at the same time to allow the advertising sign to appear on a horizontal or vertical or inclined projection surface as desired.

In order to increase the reflex effect, an artificially produced water, mist, steam, smoke or similar fog cloud 18 can be brought from a suitable point (from the side or from below) in the area of the searchlight ray bundle 9, namely for

example with the aid of a fog producing or gas apparatus 3, which atomises and spreads the suitable material by means of a regulatable and adjustable nozzle 19.

As regards the construction, the individual parts can evidently be of different shapes and differently arranged without departing from the scope of the invention.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1.—An arrangement for projecting advertising signs in space with a searchlight and a projection apparatus the light rays of which intersect, characterized in that the light ray beam (9) of the searchlight is passed through a window (6) for producing a picture screen adjustable in size and thickness, the height and width of the slot (11) of said window being adjustable independently the one of the other.

2.—An arrangement as claimed in claim 1, characterized by the simultaneous employment of an apparatus (3) for producing an artificial steam or vapour cloud which is adjustable to form a homogeneous projection screen for the projected picture by means of the adjustable window (6) of the searchlight.

Dated this 17th day of October, 1930.

CHATWIN & COMPANY,
Patent Agents for the Applicant,
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London, W.C. 1.

[This Drawing is a reproduction of the Original on a reduced scale.]

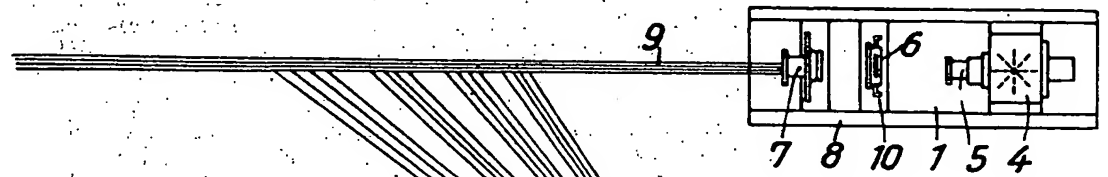


Fig. 1

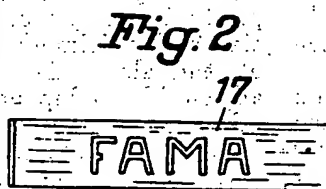


Fig. 2

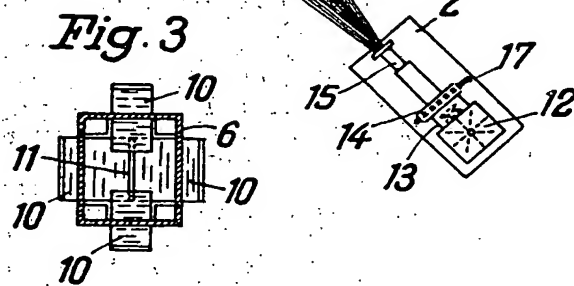


Fig. 3

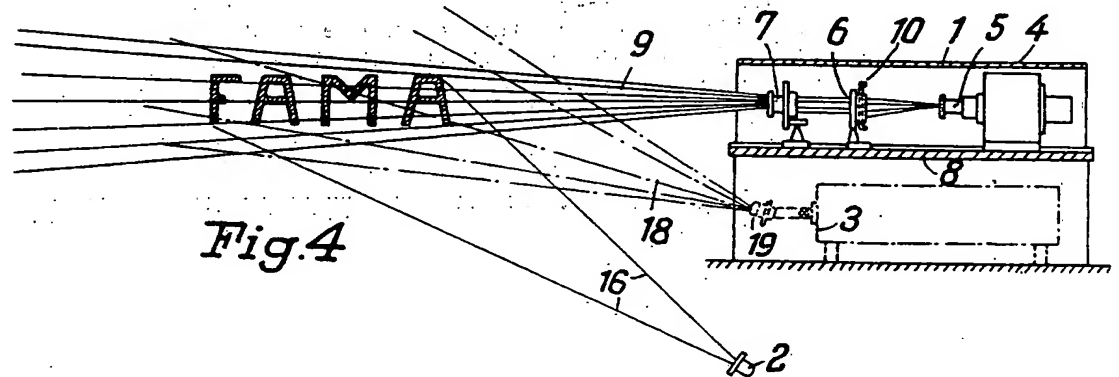


Fig. 4

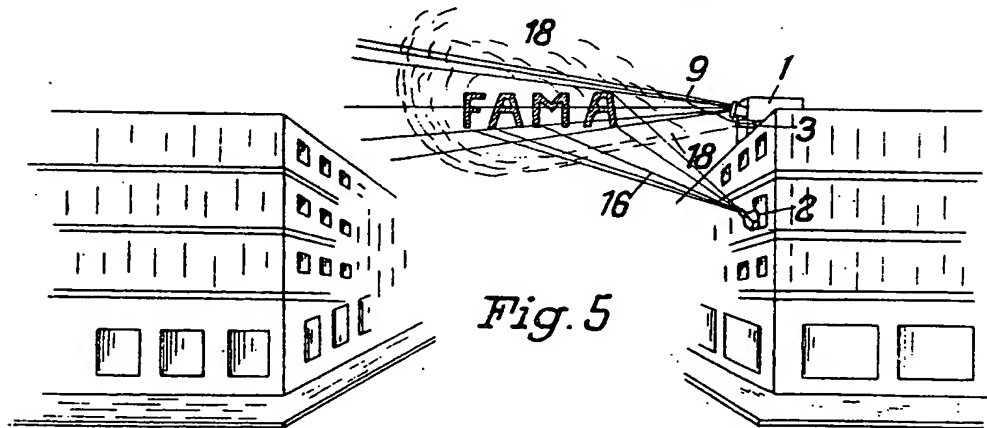


Fig. 5

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1. 2

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1. *Chlorophyll a* (Chl *a*)

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$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$

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1. *Chlorophyll a* and *Chlorophyll b* contents were determined by spectrophotometry using the method of Arar and Collins (1997).

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